3 DETECTION OF NORNICOTINE IN HUMAN URINE AFTER THE INFUSION OF NICOTINE

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Oxidative dealkylation is a major pathway in drug metabolism. Nornicotine would be the product of nicotine by this route.

Nornicotine was found in smokers urine by McKennis, Schwartz, and Bowman (1964), and after intraarterial application of nicotine, 8.9% of the administered dose were found in the urine of rats as nornicotine by Kyerematen et al. (1987). Nornicotine was also found in recent smoker studies by Neurath et al. (1988), but the nornicotine was not in excess of 1.9%, 1.7%, and 1.4% respectively of the excreted sum of the total nicotine metabolites.

As nornicotine occurs in minor and varying concentrations in most of the tobaccos, its occurrence in the urine of smokers does not prove its formation in the human metabolism: It may be directly absorbed by the smoker and pass unchanged to the urine.

Direct evidence of its metabolic formation can best be achieved from experiments under direct application of nicotine to humans.

Therefore, the nornicotine formation after intravenous infusion of nicotine was studied in the urinary excretion of six male regularly smoking volunteers after refraining from smoking.

Nornicotine has been found in the urine presenting evidence for the existence of this metabolic pathway. But only minor amounts of this metabolite are formed - less than 1% of the administered dose of nicotine possibly indicating rapid further metabolism.

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